REMARKS

Examiner Kielin is thanked for his ongoing and careful examination of the subject Patent Application.

2. Reconsideration of the rejection of Claims 1-2, and 4, 6, 10–12 under 35 U.S.C. 103(a) as being unpatentable over Lin (US 6,093,656) in view of Datta et al.(US 5,567,300) is requested, in light of the following arguments.

Applicant has reviewed Examiner's points (1), (2), and (3) with regards to Lin, which deal with "dual damascene" and dishing, seed layer and electroplating, and reverse current electroplating, respectively. One reason why Applicant's invention differs from Lin is that Applicant is using reverse electroplating instead of Lin's wet etching. Applicant applies reverse electroplating because it does not laterally etch away copper (or other conductive material). By contrast, the localized copper removal method using wet etching, as taught by Lin, is inferior because the isotropic etching rate characteristic of wet etching tends to laterally etch away the copper of the trenches, thereby not only reducing the conductive copper cross-section, but, more significantly, contaminating the copper filled damascene trenches with extraneous particles and residue.

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Lateral etching away of copper in the trenches creates another disadvantage not recognized by the prior art but solved by Applicant's invention:

> In the prior art (Lin), trenches cannot be spaced as closely as in the present invention because extra space needs to be allocated to insure that the lateral etching does not etch the copper in the trenches. Because reverse electroplating does not cause lateral etching of copper, spaces between the trenches can be smaller, in effect fitting more wiring into a given area on the chip.

Furthermore, the precise control techniques implied in reverse electroplating combined with the use of patterned PR, as proposed by Applicant, and the absence of the "lateral etching problem", allows local removal of copper in areas of thicker copper deposits such as at the edge of a wafer and in the local bump areas in dense via regions. After the localized removal of the thicker copper, CMP then can easily accomplish the global planarization with less overpolishing and better dishing and erosion control. This method is of considerable economic interest and is superior to global CMP.

Applicant believes the above facts fully demonstrate that his invention is unique and not obvious to a person of ordinary skill in the art, and that it is a better method of planarizing copper damascene. Based on the arguments above, Applicant believes that claim 1 is now allowable.

Regarding claim 4, as argued above, independent claim 1 is believed allowable, therefore, dependent claim 4 is also believed allowable.

Regarding claim 6, as argued above, independent claim 1 is believed allowable, therefore, dependent claim 6 is also believed allowable.

Regarding claims 11 and 12, as argued above, independent claim 1 is believed allowable, therefore, dependent claims 11 and 12 are also believed allowable.

Response to Arguments

3. Applicant's intention was to point out that the inventions of Lin, Fiordalice and Datta do not suggest Applicant's invention, and that it requires more than ordinary skill in the art to arrive at Applicant's invention as Applicant has demonstrated in the preceding arguments. Applicant regrets that his wording of the previous response to the Examiner was misunderstood. Applicant is not aware of having agreed that Examiner's arguments regarding the combination were proper.

Applicant believes that he has provided sufficient reason in section 2. above why one of ordinary skill would have not thought of combining these three references.

All claims are now believed to be allowable.

It is requested that should Examiner Kielin not find that the Claims are now Allowable that he please call the undersigned attorney at (845) 452-5863, to overcome any problems preventing allowance.

Respectfully submitted,

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